A. GRANDJEAN.

GAS BURNER.

APPLICATION FILED DEC. 20, 1910.

1,019,318. Patented Mar. 5, 1912.

Fig. 1

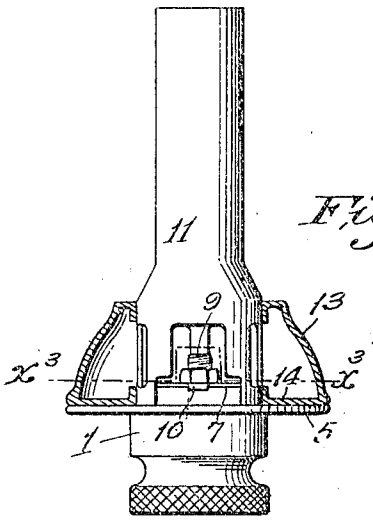


Fig. 2

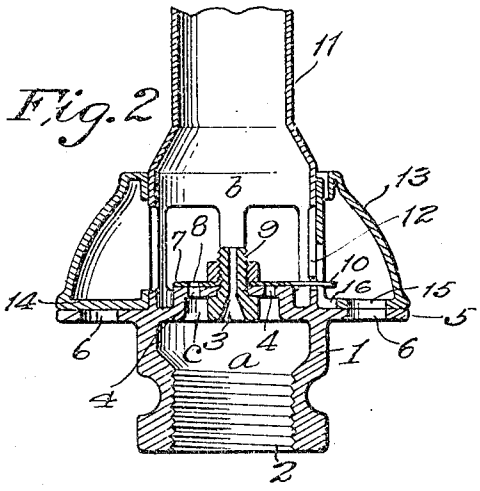


Fig. 3

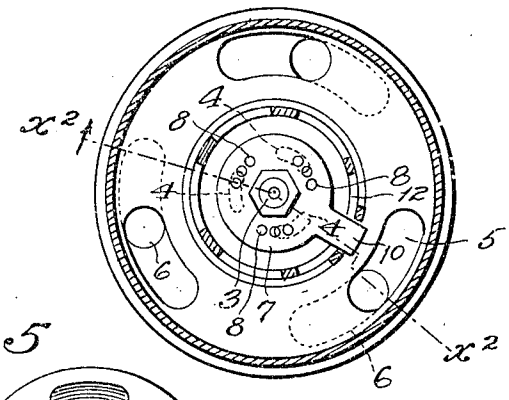


Fig. 5

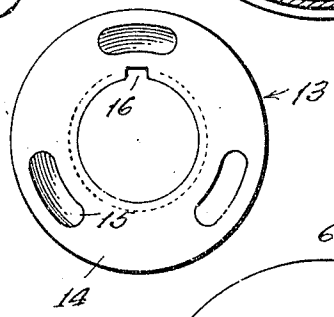
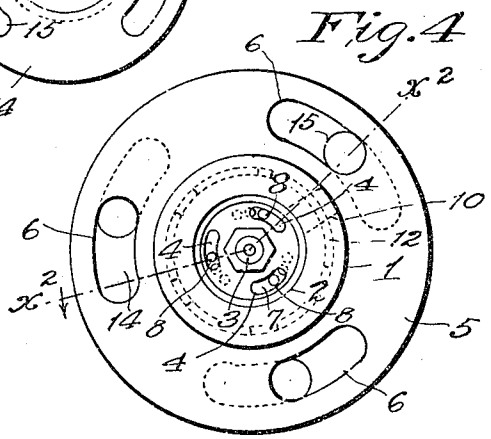


Fig. 4



Witnesses

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UNITED STATES PATENT OFFICE.

ARTHUR GRANDJEAN, OF SAN DIEGO, CALIFORNIA.

GAS-BURNER.

1,019,318. Specification of Letters Patent. Patented Mar. 5, 1912.

Application filed December 20, 1910. Serial No. 598,437.

To all whom it may concern:

Be it known that I, ARTHUR GRANDJEAN, a citizen of the United States, residing at San Diego, in the county of San Diego and State of California, have invented a new and useful Improvement in Gas-Burners, of which the following is a specification.

The invention relates to burners of the Bunsen type and is especially designed for use for burning gas which contains a greater or less amount of oxygen, which may vary in proportion to the carbon of the gas, so that a greater or less admixture of atmospheric air is desirable in order to afford complete combustion.

The object of this invention is to provide a simple and convenient contrivance by which the amount of air and gas introduced into the Bunsen tube will be proportioned inversely as the adjustment or regulation is effected.

The accompanying drawings illustrate the invention.

Figure 1 is an elevation partly in section of a burner illustrating this invention. The Bunsen tube is shown intact. Fig. 2 is an enlarged fragmental vertical mid-section on line x^2, Figs. 3 and 4, of the burner shown in Fig. 1. Fig. 3 is an enlarged plan section on line x^3, Fig. 1. Fig. 4 is an enlarged view of the underside of the burner. Fig. 5 is a bottom view of the bonnet detached, as shown in the scale of Fig. 1.

It is understood that the usual gas burner attachments for a Welsbach, or other type of lamp, may be supplied to form a lamp burner. The same are omitted from the view to avoid confusion.

1 is a hollow body forming the base of a Bunsen burner and provided internally with a gas chamber *a* and having a screw-threaded gas inlet 2 for connection with a gas pipe, not shown, and provided internally with a mixing chamber *b* formed at the bottom of the Bunsen tube 11, and with a partition *c* having a central gas jet hole 3 and a gas port 4 which port may be formed of a number of holes. Said body is provided externally with a flange 5 having one or more holes to form an air port 6. There may be any desirable number of holes to form the gas port 4 and the air port 6. In the drawing the device is shown provided with three holes to form a gas port 4 and the like number of holes to form the air port 6.

The gas jet hole 3 is centrally arranged in the partition *c* and the holes forming the gas port 4 are symmetrically disposed thereabout and the valve 7 having valved ports 8 to register with the holes forming the gas port 4 is pivoted on a nipple 9 through which the gas jet hole 3 extends. Said gas valve 7 is a thin plate provided with a stem 10 that projects beyond the base of the Bunsen tube 11 and through a way 12 in said base that allows the stem to oscillate sufficiently to entirely open and close the gas port 4 and to do this gradually as the plate is turned; the gas jet hole 3 remaining open at all times.

The bonnet 13 is seated on a flange and pivotally mounted on and is arranged to revolve around the mixing chamber formed at the base of the Bunsen tube and is provided with a valved plate 14 having holes forming a port 15 adapted to communicate with the air port 6 in one position of the bonnet, the air port being closed by said plate at another position of the bonnet.

The bonnet is provided with a recess 16 which fits the stem 10 so that when the bonnet is revolved on the Bunsen tube the valve is correspondingly rotated.

The partition, bonnet, valve, flange and the ports therethrough are so arranged relatively that the gas port is opened as the air port is closed and vice versa, as the bonnet is revolved in one or the other direction. The air which passes through the air port is directed by the bonnet into the mixing chamber at the base of the Bunsen tube to commingle with the gas in such chamber.

In practical use, the gas under pressure from a carbureter, consisting of gasolene vapor and atmospheric air mixed together, may be introduced into the chamber 1, and in case the mixture is too rich, the air port 6 may be opened and the gas ports correspondingly closed by rotating the bonnet until the appropriate mixture of gas and air is produced.

I claim:—

A gas burner comprising a hollow body forming the base thereof and having a gas chamber and a partition above said chamber, and provided externally with a flange, a tube forming a mixing chamber above the partition, there being a gas inlet into the gas chamber, a gas port through the partition and an air port through the flange; a valve plate pivotally mounted on the partition inside the mixing chamber and pro-

vided with a port to register with the gas port and adapted to open and close said gas port as the plate is rotated; and a bonnet seated on the flange and pivotally mounted on the burner tube around the mixing chamber and communicating with said mixing chamber and provided with a plate having a port to register with the air port in the flange and also being in connection with the valve plate to rotate the same to close the gas port as the air port is opened, and vice versa.

In testimony whereof, I have hereunto set my hand at Los Angeles, California, this 10th day of December, 1910.

ARTHUR GRANDJEAN.

In presence of—
JAMES R. TOWNSEND,
L. BELLE RICE.